The Human Quest
to Live in a Cosmos

—HEATHER EATON—

“The cosmos is within us. We are made of star-stuff.
We are a way for the universe to know itself.”

—Carl Sagan

Star-gazing is mesmerizing. As a child, I was constantly enthralled by the beauty, vastness, and mysteries of the night sky. This led to an intense curiosity to understand the dynamics of the universe, the solar system, Earth, and who we might be within these boundaries. As a species, human animals are acutely inquisitive. We, in general, have an insatiable appetite to know and understand. The motivations to embark on quests for knowledge and understanding are mixed. At their best, these appetites to know are motivated by intense desires to comprehend, realize, and appreciate the breadth, depth, dynamics, and limits life as we encounter and experience it. Although deceptively facile to say, human quests for knowledge and understanding influence principles and strategies about how to live, and for what to live. This blend of curiosity, a need to comprehend, and to create ways to live, is at the heart of some of the most significant and classic human quests: Where we are? Who we are? How are we to live? What is our role in the scheme and parameters of reality?

For some people, like myself, these questions were vital at a very young age. I was not involved with religion, and became deeply molded and
psychically shaped by growing up on the shores of Lake Huron, spending years contemplating the waves, being mesmerized by the natural world, and entirely captivated by the night sky. These coalesced as a young adult to the degree that little else was of interest but the quest to know from where, why, and how all this reality came to be. I realized later that these were of the order of archetypal religious, numinous, and liminal experiences. Throughout this time were recurrent experiences of suffering, which also became fastened to my psychic architecture. The power of such existential encounters provoked a deep awakening, a thirst for clarity, and a distain for superficial answers. These themes have consistently oriented and ordered my life.

The consequences are a strong desire for intelligibility and coherence, inclusive of profound sensitivities towards and appreciation of the natural world, a need to comprehend the cosmos, joined with an attentiveness to suffering and a thirst for justice. My journeys required intense studies of theology and religion, religious experiences, science and evolution, liberation and feminist analyses, epistemology, aesthetics, and a plethora of ongoing inquiries that contribute to these quests. I have been privileged to spend years in L’Arche in the community with Jean Vanier, to regularly learn from and converse with Thomas Berry, to study with Gustavo Gutiérrez in Peru, and to be engaged with vibrant and challenging feminist, ecofeminist, ecological, and religious communities of scholars and activists. Consistently, I am drawn to thinkers who blend science, religiosity, and poesies, and who do not fit customary classifications. It always seemed evident to me that we live in a divine milieu, to use the elegant phrase of Pierre Teilhard de Chardin. I cannot prove this, but I would stake my life on it. Hence the quest to live in the cosmos has been, and is, my quest.

Most disciplines and modes of inquiry are involved and implicated in the quest to live in a cosmos. From the earliest writings of the Bronze Age, through the Vedic Sanskrit texts of the seventh century BCE, to 300 BCE and the Four Books and Five Classics of Confucius and his disciples, to the contemporary investigations into new materialisms, entanglement and emergent complexity theories, the quests endure. Whatever the human animal is, it includes such pursuits. These are my quests, and continue to propel my life and work, with an existential insistence I am hard pressed to explain, or contain.

The quest to understand the cosmos represents many journeys: an outward journey to the boundaries of the universe, Earth’s journey, the human journey, and the interior journey of integrating these together. The following reflection pauses on these facets of the human quest to live in a cosmos, using insights from a few mentors, while meandering through the development of symbolic consciousness and the power this provides for
such a quest. A final section contemplates the question of how are we to live in a cosmos.

**Exterior Quest: Where are we?**

The expansiveness and entanglement of time, space, and materiality are mesmerizing actualities. There is a steady, even unrelenting, lure to apprehend the facets of the “orders of reality.” The quest to observe and fathom the exterior limits of reality is evident throughout cultures and human history. These topics—which push the human gaze as far as possible to enable us to see or perceive where we are—are the subjects of religious, scientific, and philosophical inquiry over millennia. For some, to grasp the extent of reality has a direct bearing on understanding human existence.

This exterior quest, to apprehend the most comprehensive context and extent of reality, leads to questions about origins, purpose, and metaphysics. Humans look outward, to touch and gauge the boundaries, and perceive the ethos and telos, of reality. The effort to push our consciousness outward, to seek understanding of the vastness and intricacies of time, space, materiality, dark matter and gravity, of quarks, black holes, quantum dynamics and planetary processes is an intense quest for knowledge and meaning.

The resulting answers about the ultimate dimensions of reality transform into the horizon from which we interpret human existence. Historically and currently, multiple and contradictory interpretations abound. The gains in seeing into aspects of the universe, in considerable detail, challenges many cultural or religious origins stories, basic presuppositions of time and space, as well as conventional scientific methods and mechanisms of interpretations. Yet, regardless of the current debates and the myriad worldviews, the intensity of this exterior quest persists.

Christianity, while infinitely varied and divergent, has participated in this “exterior” quest. Thomas Aquinas, Hildegard of Bingen, Pierre Teilhard de Chardin, Alfred North Whitehead, and many others were preoccupied with this pursuit. They considered that one of the exigencies of life, even a spiritual impulse, was to understand the larger parameters of reality. Many of these thinkers pondered questions and offered answers to queries that others have not yet asked.

Thomas Berry can be understood, in part, to be within this lineage.¹ For Berry, the expansiveness and essence of the world—cosmos, Earth, time,

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¹. Berry, *Dream of The Earth*. For a full bibliography of Thomas Berry’s works see http://thomasberry.org/life-and-thought/bibliography. See also Eaton, *The Intellectual*
space, and processes—were central to knowing anything meaningful about being human. Over his lifetime Berry’s predominant concerns became the future of the Earth community. For Berry, to understand anything, one has to know the sequences in the phenomenal order that led to the concern. In order to respond to the ecological crisis, which is planetary, it is necessary to know the history, origins, and dynamics of planet Earth. Earth has its origins in the dynamics and processes of the universe. At first blush it is not obvious how responding to the ecological crisis is best understood by first considering cosmology. However, I hope this will become clear along the path of the quest to live in a cosmos.

The universe—the farthest realm of the exterior quest—is understood with increasing clarity. Scientific modes of inquiry progressively detect the dynamic processes, interconnections, and expansions of the universe. What is increasingly astonishing is that everything about the universe is so much more than assumed or imagined previously. Evidence abounds about the complexities, diversifications, and the development sequences of transformations, and the intricacies and inter-relatedness of the emergent universe. It is also increasingly apparent that in spite of a capacity to parse this quest into different physical processes—sub-atomic physics, astrophysics, nucleosynthesis, dark matter and dark energy, planetary formations, etc.—there is coherence. The universe is integral: unified without being uniform. There is a cohesiveness within the astonishing diversity found in how the universe functions, including in the birth and death of stars, and galaxy and planetary formations.

Overall, in these vast exterior realms of reality, there are patterns, processes, developmental sequences, transformations, evolutions, intensifications, and complexifications. For example, in the transformation from the atomic to the molecular structures, a further degree of intensity develops in these new physical arrangements. One could say reality complexifies. Furthermore, it is entangled. Although each discipline explains particular processes in discrete separated categories, if we step back, it is evident that they are interconnected and interdependent processes. How could it be otherwise? Thus scientists are using terms such as emergent complexity, entanglement, coherence, correspondence, congruence, or intelligibility to describe the overall coordination within the universe.

Coherence and integration are also seen in the evolution and functioning of the biosphere. The biosphere is best described, and explained, with inter-related processes, networks of connections, correspondence, mutual influences, and communication from the molecular and cellular

*Journey of Thomas Berry.*
Encountering Earth

to the planetary processes. What is now known of the intelligibility across
time, space, materiality, Earth, and the biosphere is a novel revelation about
“where we are.”

The success of these quests within the last century has revealed new
knowledge, and staggered human notions about the extent of, and dynam-
ics within, the universe. This includes observing massive macro-properties,
and discerning infinitesimally micro properties, from supernovas to quarks.
A 2013 study, using light wavelengths, indicated that there are 225 billion
galaxies in the observable universe.2 In 2016, South Africa’s radio telescope,
MeerKAT, detected 1,300 galaxies in tiny corner of universe where only 70
were previously known, at a quarter of its eventual capacity.3 More intrigu-
ing is that approximately 68 percent of the universe is dark energy. Dark
matter makes up a further 27 percent. “The rest—everything on Earth, ev-
erything ever observed with all of our instruments, all normal matter—adds
up to less than 5% of the universe.”4

These observations make up one dimension of exploration of the cos-
mic parameters of which Earth is one tiny planet, in a small solar system,
in a medium size galaxy, in a universe with inestimable billions of galaxies,
dominated by dark matter and dark energy, within an expanding fabric of
space and time of approximately thirteen billion years and counting. These
facts are only answering the question, what is out there? Other modes of
inquiry are probing the dynamics of matter, energy, black holes, atomic
structures, expansions and collapses, space-time, and origins and destinies
of matter and energy within the observable universe.5 Some of the most
scientifically conversant, and challenging to interpret, are from quantum
mechanics and the affiliated fertile field of new materialisms.6

This “exterior” quest, in its cosmic form, has increasingly revealed
that we, as homo sapiens, have almost no clue about the dynamics, dimen-
sions and boundaries of the cosmos. The more the cosmos is studied—with
increasingly sophisticated tools, and the ability to discard an interpretative
theory if contradicted by new data—the more extraordinary, bizarre,
intricate, intriguing, and mysterious it becomes to the human mind. The

3. “South African super-telescope reveals distant galaxies and black holes,” The
first-image-from-south-african-super-radio-telescope-far-better-than-expected.
focus-areas/what-is-dark-energy.
5. I am not including the more speculative realms of parallel and the astronomi-
cal theories of the multiverse, or multiple universes.
investment of time, money, energy, and expertise is indicative of the power of the quest.\(^7\) *Homo sapiens* are drawn to know the cosmos: the attraction is compelling, alluring, and even irresistible. The cosmos provokes the human mind to focus with intensity, purpose, and perseverance to *know* the universe, to encounter it.

Once such a statement is made, the conversation could be seen to move into the realm of subjective musings, poesies, creative imaginings, reveries, or nonsense. I leave the reader to decide. However, after considerable reflection over decades on these topics, I fully embrace the epistemological quagmires that various postmodern analyses have demonstrated about the social construction of thought and knowledge, and of power, persons, politics, and place. The investigations into worldviews or social imaginaries further support this imbroglio, with their own specifications. The many insights from new materialisms thicken the epistemic stew by entangling the processes of knowing and knowledge with multiplicities of materiality, quantum mechanics, and interpretive pursuits. The acumen from the fields of aesthetics, literary criticism, (eco)poetics, and somatic and cognitive studies further reveals enmeshments of myth, narrative, and symbol with cognition, imagination, perception, emotion, and psychic and social processes. Within this epistemological fluidity there is support to claim an interactive relationship between the cosmos and the human. I am not insinuating that the cosmos is seeking the human in any intentional or overt manner. I am suggesting that there is a bond, a coherence and an affinity within the depths of the phenomenal order that incites and excites the human mind to undertake these quests. In some manner, the cosmos presses on human consciousness. I will attempt to clarify.

Rather than entering the epistemological entrapment mentioned above, I will draw upon discussions about symbolic consciousness. These have informed my views for years and best illuminate the path I am proposing.\(^8\) It requires a momentary meandering from the main path.

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7. Of course not all humans are captivated by these quests, and most are unable to begin to embark on these due to hosts of social ills and structural oppressions that cripple the lives, minds, and hearts of many. While cognizant of the critique that it is only the affluent who can undertake such quests, my emphasis is on the undeniable fact that this quest to know the boundaries of the cosmos, even if embarked upon by a few privileged persons, is a constant in human history.

8. I have published frequently on this topic, and am drawing from some of this work. For example see Eaton, “A Spirituality of the Earth”; “The Challenges of Worldview Transformation”; “Forces of Nature”; “An Ecological Imaginary”; and “Insights from Evolution, Cosmology and Earth Sciences.”
Within the evolution and development of the hominid species emerged the capacity to navigate the world symbolically and then to live by means of a symbolic consciousness. It is this mode of consciousness that allows for representations of the world to form, eventually as worldviews or social imaginaries. There are a plethora of studies on the stages of this development. The increased subtleties of memory enabled representations of perceptually similar episodes, which led to abstractions, and to analytic and associate modes of thought. These processes led to the formation of worldviews. For many years Diederik Aerts has focused on the emergence of worldviews, which he describes as a self-modifying, integrated internal model of the world. Unfortunately, his work remains largely unknown in North American studies of consciousness and worldviews.

The evolution of a self-reflexive consciousness that could function symbolically and sustain the capacity to coordinate images, thoughts, emotions, intuitions and insights developed over millennia. Many animals exhibit the similar capacities in their communication or language system. In primates and later in *homo sapiens* these faculties became intensified. Research into the modalities of symbolic consciousness—the affective dimensions, and the complex inter-relations among symbol, language, emotion and thought process and worldviews—is fascinating albeit provisional. It is now thought that the formation of symbolic consciousness and the capacities of representation are older, more complex, and involves more species than previously speculated. Still, the exact processes that led to communication, signs, representations, art, and imagery—all foundational to language and symbolic consciousness—remain opaque.


10. See *The Worldviews Group* which consists of Diederik Aerts (theoretical physics), Bart De Moor (engineering sciences), Staf Hellemans (sociology), Hubert Van Belle (engineering sciences) and Jan Van der Veken (philosophy). Their website lists some of their publications: http://www.vub.ac.be/CLEA/dissemination/groups-archive/vzw_worldviews/. They also publish in other groups on aspects of worldviews. For a list of publications on worldview see David Naugle’s web page: http://www.leaderu.com/philosophy/worldviewbibliography.html.

11. See Klein and Edgar, *The Dawn of Human Culture*. There is little agreement on when, where, how and which version of hominids began to manifest creative and symbolic thinking. See also Wilford, “When Humans Became Human.”
Tool use and tool making indicate distinct processes of consciousness, as corroborated by animal studies and ethography. The use and development of tools requires the capacity to imagine, and indicates a nascent form of symbolic consciousness. Otherwise the rock is just a rock, and the stick, well, a stick. Major evolutionary developments over millennia occurred prior to hominids becoming capable of representing, or documenting experiences (ideation, emotions) in markings or images. As suggests John W. Dixon, even the faint shadow of images and artifacts reveals that experiences were transmuted into a system of images to cope with and demarcate the exigencies of life. Dixon postulates that it is within the move from consciousness to self-consciousness that the intensification of symbolic psychic structures took place. There is a complex weave, not fully understood, among active imaging—imagination—experiencing the world, and a symbolic rendering of the experiences. This symbolic mode of being is the modus operandi of humans. Symbolic consciousness is the human process of experiencing and navigating the world. Although the observation seems straightforward, the implications are not. It is not through or with symbols or images that we think and comprehend. It is within symbols. Everything pertaining to human existence is represented, articulated, communicated, coordinated, and possibly even experienced within symbols. Humans are a symbolic species.

The passages from symbolic consciousness to representation and then to worldviews occurred in evolutionary stages, and were codified in experiences that became transferable and transmittable. The dynamics of symbolic functioning can be dissected into aspects, and debated as to how these evolved and when, and were inter-related to which other facet. Yet to be able to dissect worldview elements, formation, and transmission and their embeddedness in aspects of culture and context, reveals little about the dynamics of symbolic consciousness. Even the focus on internal processes that interact with and interpret experiences, emotions, cognition, and ideation, which lead to representation, and all of which infuse identity formation and a sense of self, still renders a superficial, even false, understanding. These facets are interdependent and inter-influential in fluid exchanges. Activities, contexts, events, and symbolic processes are inseparable, interwoven and enmeshed within the very structures of human consciousness and behaviors. Furthermore, they operate within an indivisible personal and social weave. Such human processes are increasingly of interest, and there are many avenues into discerning the functional dimensions of symbolic consciousness and activities.

12 Dixon, Images of Truth, 49.
The recognition that worldviews are more than cognitive maps is very important. Many researchers address the concept, content, or architecture of a worldview. They neglect to consider the evolutionary processes and internal dynamics that were acquired and adapted such that humans live within symbols and worldviews, not using symbols. Furthermore, symbolic consciousness is a more nuanced and multi-faceted phenomenon than cognitive processes. Worldviews are an external manifestation of internal personal and social symbolic processes that defy a precise portrayal. Current work on mind-brain associations, imagination and cognition interactions, consciousness, somatic studies, language acquisition, and biosemiotics are addressing this aspect of humans as a symbolic species. I think it is more fitting to name ourselves *homo symbolicus* than *homo sapiens*.

The interaction between symbolic consciousness and the natural world is also a rich terrain of study. Some suggest that the rapport between Earth from which *homo sapiens* emerged and the development of symbolic self-consciousness is the key to the origins of *homo symbolicus*. I think that the interactions with the natural world were, over time, the impetus or driver of symbolic consciousness. Survival depended on symbolic mechanisms and performance as humans expanded their capacity to navigate the exigencies of an unmitigated dependence on the natural world. This included myriad threats to survival, and unusual vulnerabilities as an animal with prolonged childhood dependencies and without defense mechanisms of teeth, claws, horns, antlers, armor, speed, poison, or camouflage.

Human symbolic consciousness and the natural world would have had to be extensively entangled. The consistency and depth of relationships between humans and the natural world, over millennia, would have been intense. Throughout history countless poets and philosophers have referred to the power of the elements. The connection between these and the formation of symbolic consciousness is less explored. Gaston Bachelard is one who pondered and articulated the deeper interior dynamics and correlations. He studied physics, philosophies of science, epistemologies, and psychoanalysis. Bachelard was interested in the intersection of materiality

13. Other terms include social consciousness, cognitive or reality maps, big picture thinking, cosmology, sacred canopy, social or ecological imaginary, and undoubtedly others. For examples see Smart, *Worldviews*; Castoriadis, *The Imaginary Institution of Society*; Clark, "A Social Ecology"; Neville, "Worldviews."

14. See the works of Berry, *Dream of the Earth*; Dixon, *Images of Truth*; Lewis-Williams, *The Mind in the Cave*; *Inside the Neolithic Mind*; van Huyssteen *Alone in the World?*

15. This stellar book describes in depth how humans interact with spaces via the imagination, symbolic consciousness and interiority. Bachelard, *The Poetics of Space*. 
and consciousness, or material imagination. Of interest here is his claim that the elements of Earth, air, water, and fire became psychodynamic structures that influence the vagaries of consciousness, imagination, reveries, and representations. He suggested that there is a fusion between these elements and the human imagination to such a degree that it is a passionate liaison. Bonds were forged between materiality, imagination, and affectivity that, for Bachelard, precede knowledge. Furthermore, creativity stems from these primal dynamics.

Caves, vistas, storms, seasons, other animals, and the elements of air, water, fire, and Earth formed human sensibilities, consciousness, and self-consciousness. Humans had no techne to control, and minimal ability to distance themselves from such powers and immensities. Until very recently the natural world has been the dominant influence on human evolution, history, and development. The intensity of this rapport would eventually evoke representation. In fact, Earth symbolization is considered to be the earliest systematic representation of the world.

Potent experiences of the natural world continue to induce a blend of material, mythic, emotional, and psychic facets that require mediation, representation, and expression. For those who are present to the natural world—the night sky, ocean waves, or to the immensity of “nature”—something can occur which can only be described as an awareness of a kind of presence. It is not enough to “go into nature.” One has to be somewhat overtaken by the natural world: its presence, vitality, power, or beauty. Outer and inner landscapes blend, and shape perception of the vibrancy of this natural world. For me, watching the night sky becomes a contemplation, which opens my awareness to something I can only describe as depths of reality that are not immediately apparent. It is something of a liminal experience where the cosmos becomes awake in the depths of my being. I experience this as a living cosmos.

For example, experiences of caves are often described in terms of intimacy, intensity, envelopment, or interiority. The experience of “the immensity of the forest” is common, yet is a multi-layered and perplexing interior involvement. Bachelard devoted much of his life to analyzing such occurrences. He perceived that it is an immensity felt while in the forest and described as “of the forest,” but experienced within our self-consciousness and our bodies. We experience, and thus imagine and interpret, the forest as radiating other dimensions than the material. We feel this immensity within
ourselves, although describe it as out there in the forest. This immensity of the forest becomes intimate: an energy, potency or presence pressing in on human consciousness. He called this an intimate immensity. For Bachelard, the imagination and associated symbolic expressions are able to enlarge indefinitely the images and sensations of immensity. Thus the experiences increase in their interior presence and power. The ascribed (often understood as derived) meaning is entangled with our emotional, imaginative, symbolic, and cognitive apparatus, which then propels our responses. If these experiences are interpreted as revealing something mysterious or sacred—the place, presence, and activity—it is perceived to emanate a sense of “otherness,” and affirmed as such, within us. We describe these experiences as something mysterious or eternal, of losing oneself and going deeper into a limitless world.

Bachelard proposed a material imagination to show the dialectic between the material realm, the unbounded elasticity of the human imagination, and the schemas of interpretations and expressions. Bachelard found that affectivity, rather than the less impressive intellectual or cognitive activity of material experiences, were more compelling or foundational to human knowing. He wrote: “It is not knowledge of the real which makes us passionately love it. It is rather feeling which is the fundamental value.”

In a similar vein, Charles Peirce wrote about the rational, progressive, and instinctual dimensions of the mind. Pierce claimed that the rational is the most recent in evolutionary development and hence the most immature. The instinctive impulses, sentiments, dreaming, imagination, memory—the community of passions—are the more mature. The rational mind requires this community of passions for optimal functioning. Parallels can be drawn to the immeasurable interconnectedness affirmed within new materialism, and what Jane Bennett calls a “vibrant matter” that affirms scientifically these insights and intuitions.

From symbolic consciousness to worldview is another step. Given that humans live within symbolic renderings of the world, the many modalities or facets of worldviews tend towards a coherent imaging of self, life, and world. Every culture develops a representation of the world as intelligible and coherent. The form is as a narrative. There is accumulating evidence that humans, individually and collectively, generate and live within narratives: that narrative is the “information and navigation” structure of the mind. This is, of course, not a new idea; however, there seems to be new

17. Halton, "Eden Inverted."
evidence to support it. Jonathan Gottschall makes a compelling case that humans are “the story telling animal.” 19 With verifications from evolutionary biology, psychology, and neuroscience, he shows a multiplicity of ways in which humans are always living within and reconstructing experiences in narratives. 20 These narratives are the cognitive, communication, education, and classification mode of humans, as a species. This storytelling mind seeks coherence. It is “allergic to uncertainty, randomness and coincidence. It is addicted to meaning. If the storytelling mind cannot find meaningful patterns in the world, it will try to impose them.” 21 Such narratives are not subject to the categories of fact or fiction: they are worldviews. Furthermore, story is the epicenter of individual and social cohesion: “story is the counterforce to social disorder, the tendency of things to fall apart. Story is the center without which the rest cannot hold.” 22

A further point about symbolic consciousness is important. Symbols not only exteriorized and codified experiences. They allowed humans to transmit experiences and accumulate knowledge. This empowered humans to move quickly, from an evolutionary standpoint, from consciousness to a symbolic and self-aware consciousness. The result of which amplified the powers of consciousness, imagination, and creativity. Such systems are referred to as positive feedback or self-amplifying loops: consciousness fashioning symbols that in turn magnify consciousness.

These symbolic mechanisms of the human mind are the bases of knowing. They are the powers through which the mind is extended. It is through symbolic formations that worldviews develop: informed by experiences and formed as stories nested in stories, and infused with meaning, emotion, and values. The interior landscape of navigating and interpreting life engenders symbolically linked activities, which are embedded in social narratives, and shaped into systematic symbolic and collective representations of the world. This empowered and emboldened what was, a few hundred thousand years prior, a vulnerable, weak, and inconspicuous species. It is this same species that has extended these same powers of symbolic consciousness into the farthest reaches of the phenomenal order, back in time 13.7 billion years, probed materiality to apprehend atomic structures, and detected black holes, and invisible dark matter.

20. Ibid., 99. Gottschall makes a further case that humans of all ages prefer fiction to fact. As well, the story telling brain, especially the left hemisphere activities, will fabricate a story rather than leave something unexplained, as seen with spilt brain subjects.
21. Ibid., 103.
22. Ibid., 138.
What is the impetus for the human quest to know the cosmos? Reasonable answers include that humans are explorers with an insatiable curiosity. Or humans are an animal who refuses to be confined, and is determined to push back boundaries. NASA claims that there is an innate desire to expand human presence into the solar system and beyond. Others could claim it is a need to prove an omnipotence of sorts, or an extension of domination. While these are sensible options, I am interested in a particular line of inquiry that combines the insights of symbolic consciousness with the quest to encounter the cosmos. The potency of self-consciousness and the elasticity of symbolic consciousness are both the tools and the force of this quest. They also generate the receptiveness for the encounter.

More is known about the boundaries of exterior realities than ever before. One outcome of making this knowledge public and accessible is to amplify and intensify human consciousness about “where we are.” Thus humans are becoming more conscious of the universe and Earth. This expansion of awareness strengthens acuity of both the scheme of things, as well as who we are in this scheme of things. Of the many insights I learned from Thomas Berry, one is that this quest to know “where we are” begins with the universe, as it has to begin at the origins of time and space. A second is to develop an incisive attentiveness of how to interpret what we perceive and learn.

The cosmos cannot be seen as a backdrop to the human drama, or as a context, an unfolding, a progression or a potential. It is not like an embryo that matures into fullness. It is more a becoming: not linear and determined, more so creative and dynamic yet seemingly with an orientation. As the universe develops, it becomes more: more complex, interactive, entwined, vibrant, and intense. That is why, for Teilhard de Chardin and Berry, the best image is that the cosmos is a cosmogenesis. This implies forms of continuity and coherence between cosmogenesis, geogenesis, and biogenesis. In the same manner, evolution is a process or dynamic of the biosphere from which *homo sapiens* evolved, with a form of self-reflexive symbolic consciousness that is able to perceive that these forms of genesis are ongoing. There is coherence and continuity.

What Berry realized is that this is radically new knowledge. The reference points for understanding the universe, Earth, ourselves and our role within the scheme of things all change with this new knowledge. To understand anything, we need to grasp, even at a basic level, that the universe

23. NASA, “Beyond Earth,” https://www.nasa.gov/exploration/whyweexplore/why_we_explore_main.html#.WM2x4XfMw1g.

24. This is not uniformity, or intelligent design where the configuration was predestined.
is a primary source and reference. Everything about Earth evolved and developed from cosmic processes. All aspects of *homo sapiens* evolved and developed from Earth processes. To say that Earth formed or produced us is inadequate language. We emerged from and are a conscious living part of Earth realities. By extension and extrapolation, the most apt description of the universe is that it is alive.\(^{25}\)

In this vein, the expansion of human consciousness into the cosmos is also the universe and Earth becoming conscious in humanity. Put differently, it is the universe reflecting on itself in human form, or that humans are a mode of self-consciousness of the universe. To understand and integrate that we are a self-conscious element of a living cosmos is a great challenge. The quest to live in a cosmos is thus a dynamic of the cosmos, and encounter with the cosmos. One way is to enter into this interpretive zone is to see how this exterior quest to know the cosmos is also an interior quest.

**Who are we? Exteriority becomes interiority**

Of the myriad ways to broach this topic, the basic point is an extension of the above: the quest to understand the largest parameters of reality is intimately involved with “who we are” in the scheme of things, and also with the interior modes of knowing. Of the countless ways to consider interiority, I have two comments related only to this essay’s theme. The first remark is about a fusion between exteriority and interiority. Here I am indebted to and influenced by significant aspects of the thought of Pierre Teilhard de Chardin. In terms of interiority, Teilhard contemplated an intimacy between the *without* and the *within* of things.\(^{26}\) The *without* is the observable. This includes the structures and changes from the establishment and bonding arrangements of atomic structures, to the formation of molecules and mega molecules out of which arose and evolved all matter. The starting point for understanding the without is the discernible atomic structures and behaviours. Teilhard sought, and developed, a theory that connects structure and activity with processes and purposes of the developmental transformations. He pondered these as a whole, meaning he would not separate anything from its structures, activities, developments and directionality.

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\(^{25}\) A magnificent exposé of this understanding is in Tucker and Grim, *Living Cosmology*.

\(^{26}\) This concept is introduced and developed throughout Teilhard de Chardin, *Le Phénomène humain* and *The Human Phenomenon*. 
For example, Teilhard studied bacteria cultures in this manner, and then plants. He explained that for plants, the without and observable cannot explain the life dynamics of plants. With insects it is more difficult, with vertebrate futile, and then breaks down completely with humans. As life evolved, the without of things—the observable—becomes increasingly incapable of explaining behavior, development, intensifying complexity, and evolutionary directionality. Some form of interiority, “within of things,” élan vital, vitality, subjectivity, Geist, *ch'i* is increasingly present, active, effective and indeed essential, everywhere. This within of things, its interiority, is a subtle, nuanced union of matter, energy, spirit, and telos that coheres the interior dynamics with the transformations to increasing levels of complexity. The within of things is manifested in the overall orientation and processes that compel atoms to transform to molecules . . . to form planets, Earth, an atmosphere and biosphere, to life, consciousness, and self-consciousness. Herein we see something similar to the congruence, intelligibility, and coherence mentioned above.

Teilhard used the term *consciousness* with many qualifications. Consciousness itself is differentiated and evolves, from nascent traces to that of life and mind. Inert matter does not have consciousness *per se*, although through his lengthy discussions of the within of things, Teilhard maintained that something interior, not observable yet clearly present, moves the process of evolution. Overall, in *Le Phénomène Humain*, he wanted to write the natural history from the without and the within of things, which combined spirituality and science. This was predictably contentious for both disciplines. For me, however, it was cogent, brilliant and beautiful, and reverberated deeply with my quest.

There is a further aspect to Teilhard’s thought that is important to appreciate in his elegant blend of science, religiosity, and poesis. Each stage of evolution is nascent in the previous, but not in a simple embryonic or potential form. There are critical changes that alter the very ontology of reality. For example, in the transformation from the atomic to the molecular structures, the new arrangements of the parts required the acquisition of another dimension—a further degree of interiority—that allowed reality to complexify. Every evolutionary development requires an intensified and differentiated structure that corresponds to a more subtle and supple concentrated interiority and consciousness. Scientifically, reality thickens, deepens, and crosses new ontological thresholds. Spiritually, interiority intensifies and amplifies.

Berry concurred that there must be differentiated forms of interiority within the processes of the universe, Earth, and the biosphere. These dynamics are the creative energies interior to all sequences of transformations.
These relationships between the without and within of things, between exterior and interior dynamics and processes, occur at all times and are intensified at every development phase. Berry used the language of differentiation, subjectivity, and inter-relatedness to convey a similar insight. What is relevant here is that many of the intuitions that Teilhard proposed are being verified through science, although described with different language and not interpreted in a spiritual framework.27

A second remark is about interior awareness. How are we to absorb these new findings about where and who we are? Even the most hard-nosed evolutionary scientists must accept that life emerged from Earth dynamics: from the interior of cosmic and planetary processes. By extrapolation, the same must be said of consciousness, self-consciousness, and symbolic consciousness. Therefore, it is logical to claim there is an emergent interiority: highly differentiated among species. Yet while the observations and logic are difficult to deny, the implications are far reaching and do not fit neatly into most operative worldviews.

To study evolution is to realize that the biosphere thrives in integrated and interdependent relations, from the interwoven atmospheric, climate and water systems to fractal patterns and cellular dynamics. The complexity and ingenuity of Earth processes such as self-organizing dynamics, natural selection, emergence, symbiosis, and co-evolution become apparent. Earth enlivens interconnected webs of bacteria, insects, plants, animals and their related social patterns, and forms of consciousness. To attend to evolution, even minimally, is to be dazzled. Earth’s intricacies animate the human imagination. The immense and elaborate planetary hydrologic cycle is stunning and breathtaking. From the microbiotic and genetic levels to the dinosaurs, the processes and life forms are astonishing. To see the elegance of birds, the ingenuity of insect communication, and the emotions of mammals is to be thrilled and overwhelmed by creativity, diversity, power, and beauty. These intimate immensities nourish human depths, or at least they could.

All animals, including humans, need first to be understood as differentiated yet integrated living elements of a whole. To grapple with the implications of evolutionary complexities propels a momentous perspectival shift. Elsewhere I have described this as the revolution of evolution.28 It is my view, and experience, that becoming aware of the extraordinary dynamics of evolution can open up the possibility of profound depth or

27. For example see Margulis and Sagan, Dazzle Gradually; Margulis, The Symbiotic Planet; Goodenough, The Sacred Depths of Nature; and Sahtouris, Earthdance.
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religious experiences. Such experiences allow a glimpse into a world of stunning elegance, of mysteries and adventure, of vistas beyond our knowing. The natural world inspires wonder and awe: a kind of power available to all who attend carefully to the natural world. The movement of the stars, the presence of mountains, the invigorating quality of ocean waves fills us with feelings of celebration and reverence. The eloquence of Abraham Joshua Heschel is worthy of a pause:

Awe is an intuition for the dignity of all things, a realization that things not only are what they are but also stand, however remotely, for something supreme. Awe is a sense for the transcendence, for the reference everywhere to mystery beyond all things. It enables us to receive in the world intimations of the divine . . . to sense the ultimate in the common and the simple; to feel in the rush of the passing the stillness of the eternal. What we cannot comprehend by analysis, we become aware of in awe.²⁹

We are moved, like Teilhard de Chardin, to claim we live in a divine milieu and that matter, spirit and life are intertwined in a sacred process. We can see a deeper reality: one that kindles the imagination, awakens us to the Earth, and ignites a fire and desire to protect the biosphere. Familiarity with evolution can open awareness or consciousness to Earth mysticism, a blend of the best of science and religion.³⁰

This kind of description is uncommon, and is unacceptable in many academic discourses. It is too subjective, too emotive and imprecise. It becomes a kind of ecopoeisis, and then is readily dismissed. We are accustomed to scientific, philosophical, ethical, and aesthetic modes of inquiry to be separate, and for academic parlance to be verifiable and solemn. Attributed to the great Mark Twain is this apropos comment: The researches of many commentators have already thrown much darkness on this subject, and it is probable that if they continue we shall soon know nothing at all about it.

Our habitual modes of thought and language categories, especially in academia, are inadequate for this synthesis of knowledge, insights, and affectivity. Hyper-rational modes of inquiry are restrictive. Customary intellectual tools that measure, define, analyze, critique, and deconstruct hegemonies have limits. These intellectual processes, while valuable, neither come from nor speak to the depth of human interiority. Hence they cannot illuminate what is being learned of the comprehensiveness and coherence


³⁰. Two unrelated Kaufmans have written on these topics. Stuart Kauffman, Reinventing the Sacred and Gordon Kaufman, In the Beginning.
of the universe. My preferred mentors (Bachelard, Teilhard, Berry, Heschel) had a great appreciation for many modes of knowing and perceiving, including dreams, stories, imagination and poesis. Other sensibilities, such as emotions, intuitions, insights, presentiments, wonder, and wisdom are valid indicators of knowledge. Interiority and depth perceptions are a place of great vitality, elasticity, and inventiveness.

The human pursuit to understand the cosmos is both an exterior and interior quest. There is an interior aspect to the dynamics and processes, and it is in interiority that we experience the universe. Those who quest to live in a cosmos, experience the cosmos. The intimate immensities of the cosmos are perceived or intuited within these interior expansions of symbolic consciousness of the self. It becomes evident, over time, that this is an encounter. It is possible to learn the data and remain unmoved, but as Bachelard would point out, there has thus been no passionate liaison, no affectivity. The material imagination is not engaged, and only the inferior functions of the intellect, cognition, and rationality are involved.

There are myriad continuities between the breadth of knowledge of the living universe and a depth of inner awareness. This new knowledge expands interiority, and magnifies consciousness. If we can absorb it, our horizons enlarge, our awareness heightens, and our religious sensibilities intensify. Again Heschel says it best:

> We can never sneer at the stars, mock the dawn or scoff at the totality of being. Sublime grandeur evokes unhesitating, unflinching awe. Away from the immense, cloistered in our own concepts, we may scorn and revile everything. But standing between earth and sky, we are silenced by the sight. \(^{31}\)

**How are we to live? To live in a cosmos**

It was in these exterior and interior quests that Berry saw a way forward to respond to the ecological crisis, with a transformed cultural orientation. His intellectual acumen as a historian of religions and culture, and his astute awareness of religious experiences, poesies, scientific knowledge and so much more became embedded in his dream of the earth and cosmological proposal. This was not for the purpose of expanding knowledge and consciousness. He shaped and interpreted the knowledge to activate dimensions of interiority to respond to the escalating ecological and social crises.

Our cultural and religious maps are not functioning in the interests of a vital biosphere. How are we sure? Look at what is happening to Earth. Look at our economic systems, at the escalating violence, the war on terror, the war on women, consumerism, and billion dollar arms industries while people starve or have no health care. Anthropogenic climate change is now recognized, but action plans are gridlocked among competing interests and powerful lobbies. Post truth, fake news, and alternative facts are dulling human sensibilities and shrinking inner and outer horizons of meaning. There is much discussion about why we cannot move effectively on ecological issues.

We cannot perceive an adequate orientation towards the planetary demands of the present. For Berry, responses lie within the cultural visions, social imaginaries or stories. The current versions are dysfunctional in their larger social and ecological dimension, and are not providing direction for a viable future. What stories could give guidance for our era? What gives us an exterior and interior orientation to integrate the most we can know about where we are, and who we are? The response here is that it is the universe and Earth, in all their complexities, majesty, diversities, and exigencies that educates and orients the depth sensibilities of the human animal. Religion and science need to collaborate to perceive the psychic-spiritual dimensions intimately interwoven in the physical-material. In order to respond to current challenges, we need to appreciate the magnitude and magnificence of existence. To live in a cosmos is to experience it as intimate immensities, which illuminate a path, and radiate radical openness. To live in a cosmos, the emergent universe, as the primary reality, can offer such an orientation. The cosmos is not just “out there.” It is also within. If we can discover our role in these larger evolutionary processes, there may be hope.

The more clearly we can focus our attention on the wonders and realities of the universe about us, the less taste we shall have for destruction. —Rachel Carson

Bibliography


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